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ABSTRACT

Results of the New Jersey College Basic Skills Placement Test are presented for fall 1984 entering freshmen. The test consists of an essay and four multiple choice sections: reading comprehension, sentence sense, computation, and elementary algebra. New forms of the test are developed each year. A total of 46,465 freshmen at 30 public colleges and universities and 11 participating independent institutions took the test in 1984. According to the standards set annually by the Basic Skills Council, the fall 1984 freshmen displayed the following levels of proficiency: 26% appeared to be proficient in verbal skills; 28% appeared to be proficient in computation; and 12% appeared to be proficient in elementary algebra. Data are provided on: test results for 1980-1984 for county colleges, state colleges, Rutger's University, and the New Jersey Institute of Technology; test results for recent high school graduates; English and mathematics preparation and proficiency on the test; students tested by sex, enrollment status, year of high school graduation, high school program, high school rank, and English and mathematics courses taken in high school. Recommendations of the Basic Skills Council and information on the test are appended. (SW)

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Results of the New Jersey College Basic Skills Placement Testing

Fall, 1984

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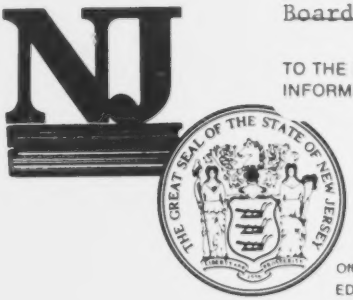

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Report to the Board of Higher Education on the Results of the New Jersey College Basic Skills Placement Testing

Fall, 1984 Entering Freshmen

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EXECUTIVE SUMMARY

The New Jersey College Basic Skills Placement Test (NJCBSPT) was first administered to all entering New Jersey public college freshmen in 1978. Now in its seventh form, the NJCBSPT was administered to the 46,465 freshmen entering New Jersey's 30 public colleges and universities (and 11 participating independent institutions) in 1984. This total represents a decline of 9.5% in entering freshmen when compared with the 51,321 tested in 1983.

Proficiences of Entering College Freshmen

According to the standards set and maintained annually by the Basic Skills Council[1], the entering freshmen for the fall of 1984 displayed the following levels of proficiency in collegiate basic skills:

26% appeared to be proficient in verbal skills;
28% appeared to be proficient in computation; and
12% appeared to be proficient in elementary algebra.

Clearly, these percentages of "proficient" students are distressingly low and, in fact, have changed very little over the past five years. The percentages of proficient students in verbal skills and in computation declined by three and two percentage points respectively when compared with 1983. Small gains had been reported for 1983 in the verbal skills and in elementary algebra. The percentage of proficient students in the verbal skills has regressed in 1984 while proficiency in elementary algebra has held steady at a meagre 12%.

[1]The New Jersey Basic Skills Council is an advisory group of twelve faculty and administrators representative of each of the college sectors in the state of New Jersey.

The 1984 decline in verbal skills was primarily due to a decrease in Reading Comprehension subtest scores. Technical changes in the reading test from 1983 to 1984 accounted for most of the change in the reading test scores. The essay and sentence sense subtests showed little change. Over the five years from 1980 to 1984, the percentage of students judged proficient in verbal skills has ranged within a narrow (3 point) band from 26% to 29%. The Council regards the decrease in 1984 verbal skills as a perturbation in this data rather than an indication of a trend.

Recent High School Graduates

Of the 46,465 students tested in 1984, 52% (24,141) were graduates of the high school class of 1984. Recent graduates made up 63% of the entering class in 1983. The pattern of proficiencies for these students is not very different from the total population of test takers:

28% appeared proficient in verbal skills;
35% appeared proficient in computation; and
16% appeared proficient in elementary algebra.

The recent graduates also showed a slight decline compared to 1983, in verbal skills (-3%), and in computation (-1%). The test results indicate, at best, no improvement in the preparation for college of recent high school graduates who enter New Jersey public colleges and universities.

Results by College Sectors

While the four-year state colleges and the university sectors continue to enroll better prepared students than the open-admission county colleges, slight declines in proficiencies were noted across all sectors compared with 1983.

At the county colleges:

16% appeared proficient in verbal skills;
17% appeared proficient in computation; and
4% appeared proficient in elementary algebra.

At the state colleges:

31% appeared proficient in verbal skills;
34% appeared proficient in computation; and
12% appeared proficient in elementary algebra.

At Rutgers:

60% appeared proficient in verbal skills;
70% appeared proficient in computation; and
48% appeared proficient in elementary algebra.

At NJIT:

43% appeared proficient in verbal skills;
75% appeared proficient in computation; and
56% appeared proficient in elementary algebra.

In the judgement of the Basic Skills Council, no sector of New Jersey's higher education community is enrolling sufficient percentages of adequately prepared students. There is no change, consequently, in the need for all colleges to continue the extensive remedial efforts they now support.

Instructional Improvement in Basic Skills

Since there has been essentially no improvement in the basic skills preparation of the recent high school graduates over the last five years, the Basic Skills Council has recommended a more active program of collegiate/secondary school collaboration for improving instruction in reading, writing and mathematics. Initiatives of the Council to this point include:

- Publication of a set of fifteen recommendations on curriculum and instruction in basic skills (see Appendix F). A particular concern is that the development of

critical thinking and reasoning skills be employed in all subject areas rather than simply drill and memorization.

- Publication of "Teaching Reading and Writing," a booklet containing suggestions for teaching based on errors seen on the verbal sections of the New Jersey Basic Skills Placement Test.

- Publication of a two-year longitudinal study, "Effectiveness of Remedial Programs in New Jersey Public Colleges and Universities, 1982-1984" that documents the college success of students who complete remediation.

- Development and pilot testing (in 64 junior high school classes around New Jersey) of a new ninth grade algebra curriculum with support from the Ford Foundation, Rutgers University, the Department of Higher Education, and the Department of Education.

- An active program of informational workshops on basic skills issues for both college and high school instructors/supervisors.

In addition, the Council awaits with interest the effects of the Department of Education's new High School Proficiency Test. This examination requires a written essay and more rigorous preparation in mathematics. However, the first students who will be required to pass this exam (and who will likely experience some changes in curriculum) will enter high school in the fall of 1985 and thus will not be tested by our colleges until 1989.

INTRODUCTION

The New Jersey College Basic Skills Placement Test (NJCBSPT) is a proficiency examination originally designed to measure the basic skills of students entering college. "Basic Skills" refers to those skills of thought and communication that an individual needs not only to take advantage of the opportunities offered by a college education but also to become a fully participating member of our society. These are not minimal "coping skills" or "life skills" which are considered essential to survival in a contemporary society (e.g., balancing a checkbook, reading a prescription label, filling out a job application). Rather, the "basic skills" of reading, writing, and mathematics are essential for collegiate thinking, learning, and reasoning. They are fundamental building blocks which underlie all learning and which are required for full participation in our society.

In 1977, the Basic Skills Council, in a report to the Board of Higher Education, defined and clarified what it meant by "basic skills:"

> By 'basic skills' the Council means the tools of intellectual discourse used in common by participating members of all academic communities. These tools are the language of words and the language of mathematics. Students need these tools to extract information, to exercise and develop the critical faculties of the mind, and to express thoughts clearly and coherently.

Without them learning is impaired, communication is imprecise, understanding is impossible. A test of 'basic skills,' therefore, is a test to determine whether an individual has developed the practical working skills of verbal and mathematical literacy needed to take advantage of the learning opportunities that colleges provide.

To define 'basic skills' in this way is not to deny the validity of other modes of communication -- within the artistic realm of discourse, for instance, the languages of music, motion, image, color, light, and texture express a universe of perceptions, feelings, and emotions which cannot be expressed adequately by words and numbers and logic alone. Nor is the Council's definition of the 'basic skills' inimical to the value of diversity. We are, to the contrary, exceedingly sensitive to the differences between colleges: differences in their students, differences in their curricula and pedagogical philosphies; differences in their missions. But in one respect all colleges are identical: their ultimate purpose is to foster learning. The Council asserts unequivocally that the 'basic skills' of reading, writing, and mathematics are a prerequisite to learning at the college level. If the possession of these skills is 'standardization,' we believe that standardization in this sense is good.

The NJCBSPT consists of an essay and four multiple choice sections: Reading Comprehension, Sentence Sense, Computation, and Elementary Algebra (see Appendix A for a more detailed description of the NJCBSPT). The test is required of all freshmen, full and part-time, entering New Jersey public colleges. In addition, eleven independent colleges in the state voluntarily administer the NJCBSPT to their entering freshmen.

In order to ensure the security of the test, a new form is developed each year. Each form is carefully equated statistically to the previous forms and the scores are reported in standard score format so as to preserve comparability from year to year. See Appendix B for data on standard score means and standard deviations for each test section over the last five years.

The NJCBSPT was developed by the Basic Skills Council and was first administered to freshmen entering public colleges in the Fall of 1978. Since then, more than 350,000 students have taken the exam. Studies performed at both the state level and at local colleges have confirmed that the New Jersey College Basic Skills Placement Test is both reliable and valid. (Information on NJCBSPT publications and reports can be found on the inside back cover of this booklet.) The test does, in fact, measure those skills that students entering college should have. Indeed, the level of skills in reading, writing, and mathematics required by the NJCBSPT is appropriate for all "non-classified" students graduating from high school.

RESULTS

The New Jersey College Basic Skills Placement Test is issued in March of each year and colleges administer the test locally, on their own schedules, through February of the following year. Students are tested only after admission and the results of the testing are used for initial placement in reading, writing and mathematics courses. Suggested placement scores are set by the Basic Skills Council but individual institutions set their own policy on appropriate student placement using NJCBSPT test scores. The Council has consistently recommended that placement be done not on the basis of one subtest score but by a combination of several test scores and other information such as the Scholastic Aptitude Test, Test of Standard Written English scores and high school rank. The answer sheets (or computer tapes) are sent to the Educational Testing Service for scoring and data analysis under contract with the Department of Higher Education.

Statewide Findings

This was the seventh year of the statewide testing of entering college freshmen. Enrollment of full-time freshmen in the New Jersey college system dropped 8.7% (40,027 to 36,530) from 1983 to 1984 and the 1984 Basic Skills testing program, which included both full and part-time students, showed a 9.5% decrease (51,321 to 46,465) compared with 1983.

The results of the testing, however, are little different than in previous years. Large proportions (in some sectors the majority) of students enter our

colleges lacking proficiency in at least some areas of reading, writing, computation and elementary algebra. Table 1 and figures 1-3 display the levels of proficiency exhibited by our entering freshmen in 1984. Three levels of proficiency ("lacking proficiency," "lack proficiency in some areas," and "appear proficient") are defined for each of the three basic skill areas. "Verbal Skills" is a composite score of the reading, writing and sentence sense subtests. Computation and elementary algebra are reported individually. See Appendix C for a detailed description of the proficiency levels as established by the Basic Skills Council.

Table 1 gives the proficiency information found over the years 1980 - 1984. There are two issues of concern in Table 1. First, the results on an absolute scale are poor. Of our entering freshmen:

26% appeared proficient in verbal skills;
28% appeared proficient in computation; and
12% appeared proficient in elementary algebra.

The second point is that over the past five years these poor results have been found consistently. In the "appear proficient" category, the verbal skills percentage has varied only over a three point range; in computation the range of variation is four points, and, in elementary algebra the range is but one percentage point. Clearly these percentages of proficient students are distressingly low and have changed little over the past five years.

The major part of the small observed decline in the 1984 verbal skills proficiencies was traceable to decreases in scores on the reading comprehension subtest (see the mean scaled scores in Appendix B).

TABLE 1*

Comparison of Statewide Test Results[1]

1980 - 1984

	1980		1981		1982		1983		1984	
	#	%	#	%	#	%	#	%	#	%
VERBAL										
Lack Proficiency	14,846	31	16,045	32	15,828	31	15,800	31	15,423	33
Lack Proficiency in Some Areas	19,388	40	20,190	41	20,900	41	20,387	40	18,899	41
Appear to be Proficient	13,439	28	13,416	27	13,740	27	14,442	29	11,853	26
COMPUTATION										
Lack Proficiency[2]	21,678	45	22,100	44	23,291	46	23,120	45	21,806	47
Lack Proficiency in Some Areas	11,695	24	12,665	25	11,259	22	12,606	25	11,481	25
Appear to be Proficient	14,578	30	15,068	30	16,585	32	15,595	30	13,178	28
ELEMENTARY ALGEBRA										
Lack Proficiency[2]	29,650	62	30,979	62	31,220	61	30,607	60	27,703	60
Lack Proficiency in Some Areas	13,172	27	13,494	27	14,395	28	14,398	28	12,930	28
Appear to be Proficient	5,129	11	5,360	11	5,520	11	6,315	12	5,832	13

*Includes students who may not have enrolled in college after being tested.

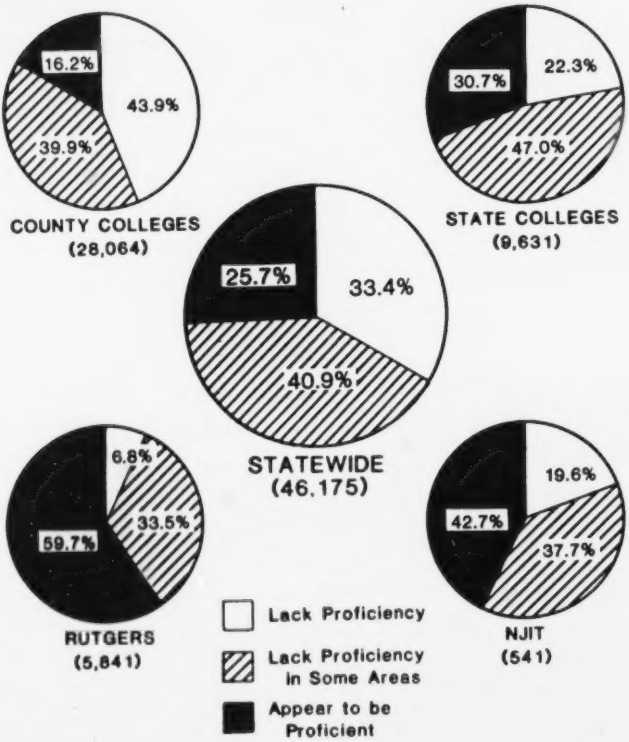
[1]See Appendix C for a description of proficiency categories.

[2]Includes those students not attempting this portion of the test.

FIGURE 1

Levels of Student Proficiency by Sector
Fall 1984

Verbal *



* Based on Total English composite score (Reading Comprehension, Sentence Sense and Essay).

FIGURE 2

Levels of Student Proficiency by Sector
Fall 1984

Computation

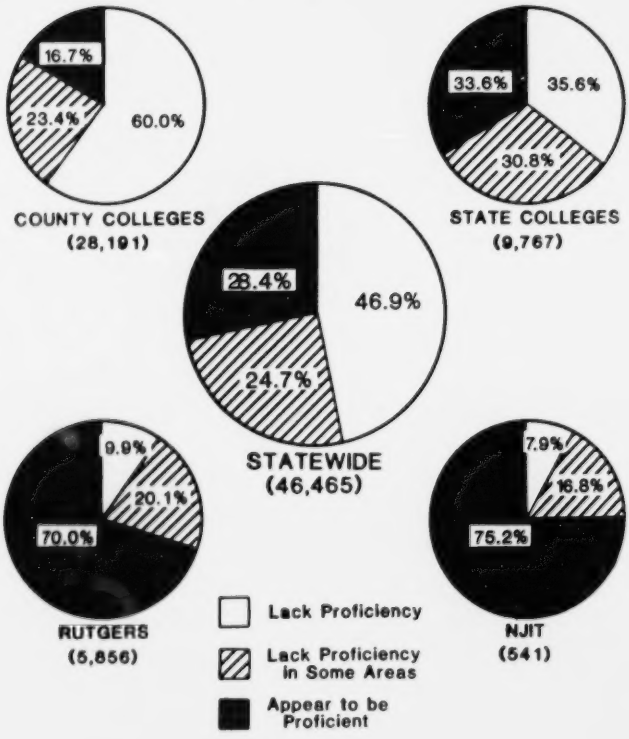
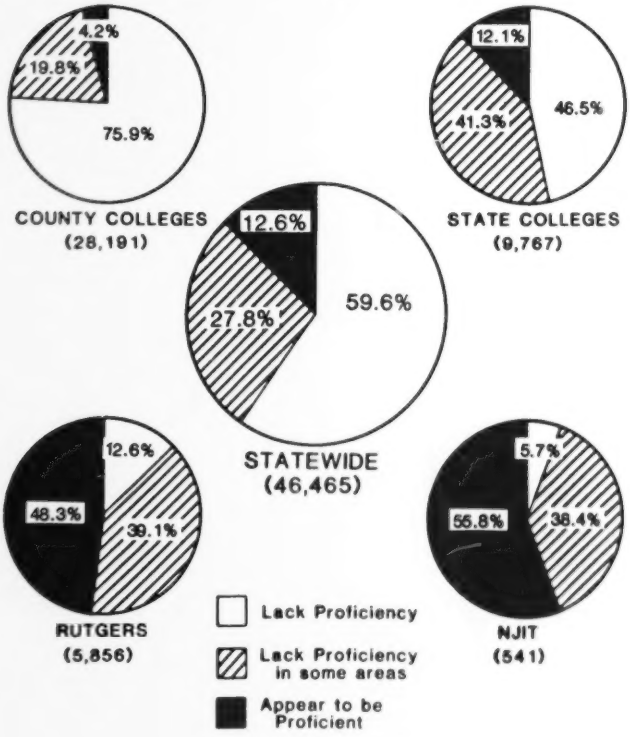


FIGURE 3

Levels of Student Proficiency by Sector
Fall 1984

Elementary Algebra



Results by College Sector

Tables 2 through 5 present the proficiency results for each of the New Jersey college sectors (county colleges, state colleges, Rutgers and New Jersey Institute of Technology (NJIT) for the current year and the previous four years. Proficiencies in all areas of basic skills are higher in the four-year and university sectors than in the open-admission county colleges. However, the slight declines in verbal skills and in computation seen in the combined statewide data are not evenly shared across sectors. The county colleges declined by two percentage points in the verbal skills compared with 1983 while the state colleges and Rutgers declined by five and four percentage points respectively. In the Rutgers sector the small gains seen in 1983 in verbal skills and computation have regressed somewhat in 1984 (see Table 4). Perhaps of greater specific concern, however, is the decline in computation (-7%) and in elementary algebra (-5%) exhibited by the 541 students entering NJIT (see Table 5). This cohort of students was both smaller in number and less well prepared in mathematics than in any of the past four years.

Recent High School Graduates

Only 52% (24,141) of the 1984 test takers actually graduated from high school in the spring of 1984. This compares with 63% (32,236) of the test takers being recent graduates in 1983. It might be expected that recent graduates would exhibit substantially higher levels of proficiency (especially in mathematics) than students who have been out of school for some length of time. The data in Table 6 indicate that recent high school graduates

TABLE 2

Comparison of Sector Test Results[1]
County Colleges

1980 - 1984

	1980		1981		1982		1983		1984	
	#	%	#	%	#	%	#	%	#	%
VERBAL										
Lack Proficiency	11,442	41	12,666	42	12,455	41	12,749	42	12,323	44
Lack Proficiency in Some Areas	11,416	40	11,891	40	12,183	40	12,290	40	11,192	40
Appear to be Proficient	5,365	19	5,359	18	5,634	19	5,472	18	4,549	16
COMPUTATION										
Lack Proficiency[2]	16,414	58	16,795	56	17,523	58	17,806	58	16,905	60
Lack Proficiency in Some Areas	6,706	24	7,368	25	6,472	21	7,277	24	6,592	23
Appear to be Proficient	5,344	19	5,907	20	6,385	21	5,594	18	4,694	17
ELEMENTARY ALGEBRA										
Lack Proficiency[2]	22,331	78	23,451	78	23,321	77	23,413	76	21,404	76
Lack Proficiency in Some Areas	5,136	18	5,450	18	5,807	19	6,000	20	5,591	20
Appear to be Proficient	997	4	1,172	4	1,252	4	1,264	4	1,196	4

[1]See Appendix C for a description of proficiency categories.

[2]Includes those students not attempting this portion of the test.

TABLE 3

Comparison of Sector Test Results[1]
State Colleges

1980 - 1984

	1980		1981		1982		1983		1984	
	#	%	#	%	#	%	#	%	#	%
VERBAL										
Lack Proficiency	2,318	22	2,232	22	2,342	21	2,109	20	2,152	22
Lack Proficiency in Some Areas	4,693	44	4,660	45	5,060	45	4,787	44	4,526	47
Appear to be Proficient	3,638	34	3,434	33	3,823	34	3,911	36	2,953	31
COMPUTATION										
Lack Proficiency[2]	3,673	34	3,454	33	3,948	35	3,621	33	3,473	36
Lack Proficiency in Some Areas	3,138	29	3,190	31	2,961	26	3,280	30	3,011	31
Appear to be Proficient	3,858	36	3,694	36	4,419	39	4,080	37	3,283	34
ELEMENTARY ALGEBRA										
Lack Proficiency[2]	5,249	49	5,160	50	5,535	49	5,035	46	4,546	47
Lack Proficiency in Some Areas	4,312	40	4,126	40	4,573	40	4,572	42	4,038	41
Appear to be Proficient	1,108	10	1,052	10	1,220	11	1,374	13	1,183	12

[1]See Appendix C for a description of proficiency categories.

[2]Includes those students not attempting this portion of the test.

Comparison of Sector Test Results[1]
Rutgers

1980 - 1984

	1980		1981		1982		1983		1984	
	#	%	#	%	#	%	#	%	#	%
VERBAL										
Lack Proficiency	666	11	617	9	528	9	395	6	399	7
Lack Proficiency in Some Areas	2,101	34	2,275	35	2,401	39	1,885	30	1,956	33
Appear to be Proficient	3,461	56	3,661	56	3,279	53	3,959	64	3,486	60
COMPUTATION										
Lack Proficiency[2]	834	13	991	15	787	13	624	10	577	10
Lack Proficiency in Some Areas	1,267	20	1,356	21	1,125	18	1,134	18	1,177	20
Appear to be Proficient	4,136	66	4,212	64	4,307	69	4,493	72	4,102	70
ELEMENTARY ALGEBRA										
Lack Proficiency[2]	1,203	19	1,260	19	1,109	18	864	14	738	13
Lack Proficiency in Some Areas	2,633	42	2,797	43	2,782	45	2,447	39	2,291	39
Appear to be Proficient	2,401	38	2,502	38	2,328	37	2,940	47	2,827	48

[1]See Appendix C for a description of proficiency categories.

[2]Includes those students not attempting this portion of the test.

TABLE 5

Comparison of Sector Test Results[1]
NJIT

1980 - 1984

	1980		1981		1982		1983		1984	
	#	%	#	%	#	%	#	%	#	%
VERBAL										
Lack Proficiency	111	16	94	14	109	15	87	15	106	20
Lack Proficiency in Some Areas	271	40	289	42	313	43	250	42	204	38
Appear to be Proficient	302	44	298	44	300	42	262	44	231	43
COMPUTATION										
Lack Proficiency[2]	21	3	34	5	32	4	27	5	43	8
Lack Proficiency in Some Areas	81	12	86	13	79	11	80	13	91	17
Appear to be Proficient	585	85	559	82	611	85	492	82	407	75
ELEMENTARY ALGEBRA										
Lack Proficiency[2]	24	3	21	3	33	5	23	4	31	6
Lack Proficiency in Some Areas	279	41	273	40	270	37	212	35	208	38
Appear to be Proficient	384	56	385	57	419	58	364	61	302	56

[1]See Appendix C for a description of proficiency categories.

[2]Includes those students not attempting this portion of the test.

TABLE 6

Comparison of Statewide Results[1]
for
Recent High School Graduates[1]
1980 - 1984

	1980		1981		1982		1983		1984	
	#	%	#	%	#	%	#	%	#	%
VERBAL										
Lack Proficiency	7,694	26	8,569	28	8,066	26	8,424	26	8,289	29
Lack Proficiency in Some Areas	12,837	44	13,251	44	14,038	45	13,716	43	12,548	44
Appear to be Proficient	8,724	30	8,668	28	9,004	29	9,896	31	7,943	28
COMPUTATION										
Lack Proficiency[2]	9,255	37	11,589	38	12,398	39	12,132	38	9,189	38
Lack Proficiency in Some Areas	6,654	27	8,210	27	7,500	23	8,493	26	6,549	27
Appear to be Proficient	8,922	35	10,741	35	12,066	38	11,611	36	8,303	35
ELEMENTARY ALGEBRA [2]										
Lack Proficiency	12,260	49	15,396	50	16,031	50	15,442	48	11,258	47
Lack Proficiency in Some Areas	9,027	36	10,662	35	11,411	36	11,439	35	8,874	37
Appear to be Proficient	3,544	14	4,482	15	4,522	14	5,355	17	4,009	16

[1]For each year, the most recent high school graduates are those who graduated the Spring prior to their enrollment in college.
[2]Includes those students not attempting this portion of the test.

tested at our colleges exhibit only slightly higher proficiencies than those seen in the total group. Specifically:

28% appeared proficient in verbal skills;
35% appeared proficient in computation; and
16% appeared proficient in elementary algebra.

The slight declines from 1983 to 1984 in the proficiencies of the total group were also evident in the recent graduates. Those appearing proficient in verbal skills declined 3%; in computation declined 1% and in elementary algebra 1%. Figure 4 displays the three proficiency levels in each basic skill exhibited by the high school class of 1984.

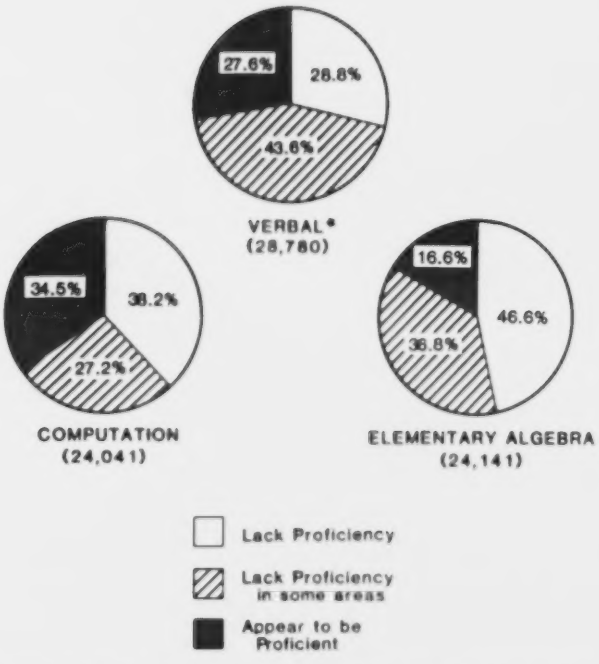
High School English and College Proficiency

The NJCBSPT form collects data on several student background variables including self reports on the number and type of high school mathematics and English courses taken. Table 7 shows the relationship between the number of years of high school English taken and proficiency in verbal skills on the NJCBSPT. The data are only for 1984 graduates whose best language was English. Ninety-seven percent of these recent graduates have taken four years of English; yet of these, only 29% appear proficient in verbal skills. With less than four years of English preparation the "appear proficient" category drops to 11.6% (or less). Four years of typical high school English courses do not guarantee adequate preparation for reading and writing at the college level.

FIGURE 4

Levels of Student Proficiency by Skill Area
Recent High School Graduates

Fall 1984



*Based on Total English composite score (Reading Comprehension, Sentence Sense and Essay).

TABLE 7

Relationship Between Number of Years of English Completed in High School and the Verbal Skills Proficiencies of 1984 New Jersey High School Graduates*

Years of English	Lack Proficiency		Lack in Some Areas		Appear Proficient		TOTALS
	No.	%	No.	%	No.	%	
One	69	68.3	24	23.8	8	7.9	101
Two	104	72.2	32	22.2	8	5.5	144
Three	219	59.2	108	29.2	43	11.6	370
Four	6,162	26.5	10,299	44.3	6780	29.2	23,241
							23,976

*Students who graduated in the spring prior to their enrollment in college. Limited-English-Proficient Students are excluded.

High School Mathematics and College Proficiency

The relationship between high school mathematics courses taken and subsequent proficiency in elementary algebra and computation can be seen in Tables 8 and 9. These data include only 1984 New Jersey graduates who reported that their best language was English. The data suggest that any preparation of less than four years of mathematics most likely yields grossly inadequate proficiency in elementary algebra. For example, in Table 8, course category #2 includes the 1,825 students who took only one year of algebra in high school. Of these only one student scored high enough to "appear proficient" in elementary algebra In category #5, of the students who took the typical "college prep" program of Algebra I, II and Geometry, only 3.3% were proficient in elementary algebra. There were 6,831 students in this category and only 228 scored 25 or better out of 30 elementary algebra questions. In category #9, students who completed the "college prep" sequence plus calculus were much more likely to be proficient (66.3%) in algebra. Less than 10% of the recent graduates (2,266 of 24,141), however, fell into this category.

The results in Tables 8 and 9 have been similar for the last five years. Table 10 summarizes the data from these three key course categories over the past five years. One welcome trend is that more of our recent high school graduates are taking the fourth year of mathematics. Table 11 displays this five year trend. In 1980 students who took the math sequence through calculus made up only 3.94% of the test takers. In 1984 this group had risen to 6.2% of the test takers. This small group of students represents an increasing percentage of the "appear proficient" category, increasing its "category share" from 27.3% in 1980 to 37.5% in 1984. Were it not for this small increase in the size of the calculus-taking group, the statewide proficiency levels in elementary algebra would have decreased over the last five years. It should be noted that the taking of calculus is not necessarily the causal variable in ensuring proficiency in algebra. It is probably true that only the best prepared students from three-year high school math sequence elect calculus. Students who take senior math courses other than calculus also display higher algebra

TABLE 8

Relationship Between Mathematics Courses Completed in High School and the Elementary Algebra Proficiency[1] of the Students Tested: 1984 New Jersey High School Graduates Only[2]

Course Category	TOTAL No.	Lack Proficiency Raw Score 0-13 No.	%	Lack Proficiency in Some Areas Raw Score 14-24 No.	%	Appear to be Proficient Raw Score 25-30 No.	%
1. Business Math or General Math	1634 (534)*	1614	98.8	18	1.1	2	0.1
2. Algebra I	1825 (172)*	1739	95.3	85	4.7	1	0.0
3. Algebra I & Geometry	2841 (112)*	2516	88.6	319	11.2	6	0.2
4. Algebra I & II	941 (28))*	653	69.4	269	28.6	19	2.0
5. Algebra I, Geometry & Algebra II	6831 (69)*	3389	49.6	3214	47.1	228	3.3
6. Trigonometry (No.Sr Math)	4776 (14)*	935	19.6	2807	58.8	1034	21.6
7. Senior Math (No Trigonometry)	1097 (2)*	207	18.9	595	54.2	295	26.9
8. Trigonometry & Senior Math	1398 (1)*	129	9.2	731	52.3	538	38.5
9. Calculus (No Senior Math)	2266 (5)*	65	2.9	698	30.8	1503	66.3
10. Senior Math & Calculus	532 (1)*	11	2.1	138	25.9	383	72.0
Overall	24141 (938)*	11258	46.6	8874	36.8	4009	16.6

*Non-takers (included in the total number).

[1]See Appendix C for a description of proficiency categories.

[2]Recent high school graduates are those who graduated the spring prior to their enrollment in college. Limited-English-Proficient students are excluded.

TABLE 9

Relationship Between Mathematics Courses Completed in High School and the Computation Proficiency[1] of the Students Tested: 1984 New Jersey High School Graduates Only[2]

Course Category	TOTAL No.	Lack Proficiency Raw Score 0-13 No.	%	Lack Proficiency in Some Areas Raw Score 14-24 No.	%	Appear to be Proficient Raw Score 25-30 No.	%
1. Business Math or General Math	1634 (2)*	1483	90.8	141	8.6	10	0.6
2. Algebra I	1825 (172)*	1440	78.9	316	17.3	69	3.8
3. Algebra I & Geometry	2841 (2)*	1865	65.6	730	25.7	246	8.7
4. Algebra I & II	941 (2)*	584	62.1	243	25.8	114	12.1
5. Algebra I, Geometry & Algebra II	6831 (6)*	2676	39.2	2564	37.5	1591	23.3
6. Trigonometry (No.Sr Math)	4776 (3)*	780	16.3	1509	31.6	2487	52.1
7. Senior Math (No Trigonometry)	1097 (2)*	174	15.9	313	28.5	610	55.6
8. Trigonometry & Senior Math	1398 (0)*	105	7.5	364	26.0	929	66.5
9. Calculus (No Senior Math)	2266 (2)*	69	3.1	304	13.4	1893	83.5
10. Senior Math & Calculus	532 (0)*	13	2 4	65	12.2	454	85.3
Overall	24141 (20)	9189	38.1	6549	27.1	8403	34.8

*Non-takers (included in the total number).

[1]See Appendix C for a description of proficiency categories.

[2]Recent high school graduates are those who graduated the spring prior to their enrollment in college. Limited-English-Proficient students are excluded.

TABLE 10

Mathematics Preparation in High School Versus the Number and Percentages of Students Who "Appear Proficient" in NJCBSPT Elementary Algebra, 1980 - 1984

Courses Taken	1980		1981		1982		1983		1984	
	No.	%	No.	%	No.	%	No.	%	No.	%
Algebra I Only	0	0.0	1	0.1	1	0.05	0	0.0	1	0.0
Algebra I, II & Geometry	318	4.7	257	3.8	232	3.4	285	3.7	228	3.3
Algebra I, II, Geometry & Calculus	868	65.2	1,082	66.2	1,184	62.4	1,648	68.2	1,503	66.3
Total Tested In Year*	21,999		23,388		24,196		27,396		24,141	
No. "Proficient"	3,180		3,493		3,379		4,536		4,009	
Total % "Proficient"	14.5		14.9		14.0		16.6		16.6	

*Current year high school graduates only; Limited-English-Proficient students excluded; Algebra test omitters included.

TABLE 11

Recent High School Graduates Who Completed Algebra I, II, Geometry and Calculus 1980 - 1984

	1980	1981	1982	1983	1984
As % of High School Test Takers	3.94	4.6	4.89	6.01	6.2
As % of Total who "Appear Proficient"	27.3	30.9	35.0	36.3	37.5

proficiences (between 55 and 66%) than the students completing only the three year sequence. The Council would like to see both a strengthening of the teaching of algebra in high school and a greater emphasis from guidance counsellors on channeling students into the fourth year of mathematics.

The difficulty level of the NJCBSPT elementary algebra test is set at approximately the ninth grade. Sample questions can be seen in Appendix D.

Background Information

Data on sex, enrollment status, year of graduation, type of high school program, class rank, courses taken in high school and perceptions of personal ability appear in Tables 12 through 23 and Appendix E. These data are self-reported by the students and consequently can contain selective distortions based on student self-image. For example, in Table 23, 43% of the statewide population considered themselves "above average in mathematical ability" and 85% consider themselves "average or above." Yet our proficiency data indicate that only 13% of these students are proficient in ninth grade algebra. Only a third of the students "want help to improve" in mathematics. The gap between students' perception of their math ability and their actual proficiency suggests the need for considerable counseling and academic advisement in our colleges.

Highlights of the 1984 demographic data include:

- Majority of the students are female (54%).
- Three-quarters are full-time (down from 78% in 1983).
- Most (61%) took the "academic high school program."
- A small number (5 1/2%) said English was not their best language, while 15.4% said a language other than English was sometimes spoken in their home.
- Significantly more students (83%) took four years of high school English than those who took four years of math (48%).
- Only 9% of the students took a calculus course.

TABLE 12

Students Tested, Fall 1984, By Sex

Self-Reported Information	Statewide #	%	County Colleges #	%	State Colleges #	%	Rutgers #	%	NJIT #	%
TOTAL NUMBER TESTED										
Male	20489	44	12268	43	4298	44	2739	47	426	79
Female	25118	54	15410	55	5327	54	3027	52	106	20
No Response	858	2	513	2	142	2	90	1	9	1

TABLE 13

Students Tested, Fall 1984, By Enrollment Status

Self-Reported Information	Statewide #	Statewide %	County Colleges #	County Colleges %	State Colleges #	State Colleges %	Rutgers #	Rutgers %	NJIT #	NJIT %
TOTAL NUMBER TESTED										
Full-Time	34931	75	18816	67	8298	85	5467	93	532	98
Part-Time	10414	22	8794	31	1379	14	186	3	6	1
No Response	1120	2	581	2	90	1	203	4	3	1

TABLE 14

Students Tested, Fall 1984, By Year of High School Graduation

Self-Reported Information	Statewide		County Colleges		State Colleges		Rutgers		NJIT	
	#	%	#	%	#	%	#	%	#	%
1984	28846	62	14098	50	7427	76	5201	89	498	92
1983	3518	8	2638	9	635	7	151	3	22	4
1982	1909	4	1489	5	292	3	74	1	8	2
Prior to 1982	9297	20	7722	27	1224	13	210	4	10	2
Did Not Graduate	1271	3	1206	4	47	1	11	--	0	--
No Response	1624	3	1038	4	122	1	209	4	3	1

TABLE 15

Students Tested, Fall 1984, By High School Program

Self-Reported Information	Statewide		County Colleges		State Colleges		Rutgers		NJIT	
	#	%	#	%	#	%	#	%	#	%
Academic	28325	61	13585	48	7527	77	5212	89	478	88
General	8752	19	6847	24	1331	14	316	5	43	8
Career	6085	13	5267	19	616	6	90	2	15	3
GED	1453	3	1281	4	135	1	18	--	0	--
Other	612	1	537	2	53	1	11	--	1	--
No Response	1238	3	673	2	105	1	209	4	4	1

TABLE 16

Students Tested, Fall 1984, By Self-Reported High School Rank

Self-Reported Information	Statewide #	%	County Colleges #	%	State Colleges #	%	Rutgers #	%	NJIT #	%
Highest Tenth	3892	8	1126	4	729	8	1678	29	137	25
Second Tenth	6125	13	2424	9	1506	15	1733	30	150	28
Second Fifth	10258	22	5264	19	2882	30	1441	25	168	31
Middle Fifth	18521	40	13460	48	3635	37	677	12	75	14
Fourth Fifth	4040	9	3303	12	586	6	54	1	4	1
Lowest Fifth	1082	2	926	3	124	1	14	--	0	--
No Response	2547	6	1688	6	305	3	259	4	7	1

TABLE 17

Total Number of Years of English Studied in High School, Fall 1984

Self-Reported Information	Statewide		County Colleges		State Colleges		Rutgers		NJIT	
	#	%	#	%	#	%	#	%	#	%
One	1014	2	890	3	93	1	21	--	1	--
Two	1894	4	1656	6	188	2	30	1	2	--
Three	2622	6	2201	8	287	3	72	1	16	3
Four	38598	83	21953	78	8964	92	5420	93	515	95
No Courses	498	1	415	1	48	1	29	1	1	--
No Response	1839	4	1076	4	187	2	284	5	6	1

TABLE 18

Total Number of Years of Mathematics Studied in High School, Fall 1984

Self-Reported Information	Statewide		County Colleges		State Colleges		Rutgers		NJIT	
	#	%	#	%	#	%	#	%	#	%
One	1821	4	1605	6	175	2	21	--	0	--
Two	6897	15	5595	20	1010	10	136	2	3	1
Three	13251	29	8452	30	3233	33	949	16	41	8
Four	22280	48	11072	39	5156	53	4481	77	490	91
No Course	574	1	490	2	47	1	27	1	3	1
No Response	1642	3	977	3	146	2	242	4	4	1

TABLE 19

Mathematics Courses Taken in High School, Fall 1984 Students Tested

Self-Reported Information	Statewide #	Statewide %*	County Colleges #	County Colleges %*	State Colleges #	State Colleges %*	Rutgers #	Rutgers %*	NJIT #	NJIT %*
General Math	16677	36	12701	45	2624	27	811	14	82	15
Business Math	7608	16	6005	21	1114	11	276	5	17	3
Algebra I	33207	71	18607	66	8130	83	4448	76	456	84
Algebra II	26120	56	11938	42	7139	73	5114	87	494	91
Geometry	29907	64	14625	52	7954	81	5245	90	505	93
Trigonometry	12784	27	4394	16	3303	34	3863	66	408	75
Senior Academic	4603	10	1420	5	1226	13	1491	26	163	30
Calculus	4096	9	940	3	776	8	1917	33	240	44
No Response	1328	3	763	3	66	1	232	4	3	1

*Percentages exceed 100 since students may take more than one math course in high school.

TABLE 20
Comparison of Background Data of Students Tested
Statewide
1980 - 1984
(By Percentages)

	1980	1981	1982	1983	1984
SEX					
Male	45	44	44	45	44
Female	52	55	54	54	54
ENROLLMENT STATUS					
Full-Time	79	78	77	78	75
Part-Time	18	20	21	21	22
HIGH SCHOOL PROGRAM					
Academic	58	60	61	62	61
General	19	19	18	18	19
Career	14	14	14	14	13
GED	4	4	4	4	3
Other	4	1	1	1	1
HIGH SCHOOL RANK					
Highest Fifth	22	23	22	23	21
Second Fifth	23	23	23	23	22
Middle Fifth	39	39	40	40	40
Fourth Fifth	7	7	8	8	9
Lowest Fifth	2	2	2	2	2
NO. OF YEARS OF HIGH SCHOOL ENGLISH					
One	2	2	2	2	2
Two	5	5	4	4	4
Three	8	8	6	6	6
Four	80	81	83	84	83
NO. OF YEARS OF HIGH SCHOOL MATH [1]					
One	6	5	5	4	4
Two	19	18	16	15	15
Three	31	30	30	29	29
Four	39	42	46	47	48
MATH COURSES TAKEN IN HIGH SCHOOL					
General Math	37	37	36	37	36
Business Math	17	18	17	17	16
Algebra 1	72	72	71	72	71
Algebra 2	52	53	55	56	56
Geometry	63	63	63	65	64
Trigonometry	23	24	26	27	27
Senior Academic	9	10	10	10	10
Calculus	7	7	8	9	9

[1]Percentages excced 100 since students may take more than one math course in high school.

TABLE 21

Self-Reported Years of English Studied
In High School
By Mean Scaled Scores on the Verbal Tests
1982 - 1984

Years Studied	Number			TOTAL ENGLISH[1]			READING COMPREHENSION			ESSAY[2]			COMPOSITION[3]		
	1982	1983	1984	1982	1983	1984	1982	1983	1984	1982	1983	1984	1982	1983	1984
FOUR	41,881	42,581	38,598	165	166	165	164	164	162	7.1	6.8	7.3	166	167	166
THREE	3,051	3,094	2,622	159	158	158	158	157	156	6.1	5.6	6.3	160	160	160
TWO	2,092	2,070	1,894	155	156	156	157	155	154	5.7	5.3	5.8	157	158	158
ONE	1,156	1,131	1,014	151	151	151	150	149	149	4.9	4.4	5.1	152	153	153

[1]Total English is a composite score based on all reading and writing sections.

[2]Essay topics change yearly; therefore, mean scores can not be equated from year to year.

[3]Composition is a composite score based on Sentence Structure/Sense and Essay.

TABLE 22

Self-Reported Years of Mathematics Studied
In High School
By Mean Scaled Scores on the Mathematics Tests
1982 - 1984

Years Studied	Number			Computation			Elementary Algebra		
	1982	1983	1984	1982	1983	1984	1982	1983	1984
FOUR	21,587	23,345	22,280	168	168	168	171	172	171
THREE	13,452	14,139	13,251	164	164	164	164	164	164
TWO	6,125	7,026	6,897	160	160	159	158	158	158
ONE	1,357	1,741	1,821	157	157	157	156	157	157

TABLE 23

Self-Reported Student Background Information
By Sector, Fall 1984

	County Colleges		State Colleges		Rutgers University		NJIT		STATE TOTAL	
	#	%	#	%	#	%	#	%	#	%
Consider themselves above average in written expression	12,224	43	5,685	58	4,215	72	323	60	23,554	51
Consider themselves average in written expression	13,024	46	3,652	37	1,297	22	197	36	18,849	41
Consider themselves below average in written expression	1,534	5	237	2	79	1	15	3	1,906	4
Want help to improve writing	5,806	21	2,239	23	1,375	24	180	33	10,061	22
Want help to improve reading	3,102	11	1,081	11	551	9	105	19	5,028	11
Want help to improve study habits	9,018	32	3,173	33	1,643	28	163	30	14,603	31
Consider themselves above average in mathematical ability	9,787	35	4,664	48	4,202	72	477	88	20,029	43
Consider themselves average in mathematical ability	13,425	48	4,095	42	1,242	21	55	10	19,608	42
Consider themselves below average in mathematical ability	3,511	13	803	8	148	33	2	--	4,603	10
Want help to improve mathematics	9,824	35	3,088	32	1,408	24	160	30	15,096	33

APPENDIX A

Description of the New Jersey Basic Skills Placement Test

The NJCBSPT was designed especially to determine which students admitted to college need special help in certain basic skills; that is, the test was designed to discover which of the entering students do not have the level of skills generally expected of college freshmen and deemed necessary for successful completion of their academic programs. Thus, the basic skills measured by the test are defined not as the skills necessary to survive in the world (e.g., filling out applications, reading directions on medicine bottles, or the like) but as the skills needed to read college textbooks, to write papers for class, to solve mathematical problems, and, indeed, to succeed in a technological society.

The portions of the NJCBSPT dealing with verbal skills yield the following scores:

1. Total English score, a composite score based on the Reading Comprehension, Sentence Sense, and Essay sections.

2. Reading Comprehension.

3. Sentence Sense.

4. Essay.

5. Composition, a composite score based on the Sentence Sense and Essay sections.

A more detailed explanation of the test can be found in Interpreting Scores on the New Jersey College Basic Skills Placement Test, and a more detailed explanation of the writing sample can be found in Scoring the Essays; both booklets are available from the Department of Higher Education (see page inside back cover).

Reading Comprehension (37 questions, 50 minutes)

The Reading Comprehension section of the test measures students' ability to understand what a written text says, to extract the main idea from the text, and to draw appropriate inferences from statements made in the test. Most, but not all, of the questions testing these skills are related to passages printed in the test book. The passages cover a variety of subjects and represent a variety of writing purposes and styles.

Students taking the test are expected to read the passages carefully, not merely skim them; they are expected to know what the text actually says, not merely what they think it might say. Close reading and attention to detail are expected, as is attention to tone. Students are expected to be able to generalize about the ideas in the passage and the method of their presentation. They are also expected to be able to identify ideas found in the passage when those ideas are stated in different words and to understand and identify the assumptions made by the author and the implications of the text.

For those NJCBSPT questions that are unrelated to passages, students are asked to identify the generalization that is supported by a group of statements or to identify the idea that best supports a given generalization.

Sentence Sense (40 questions, 35 minutes)

The Sentence Sense section uses two kinds of multiple-choice questions. The first requires the students to identify faults in sentences and make appropriate corrections. The second asks students to rewrite sentences, much as they would do when editing their own writing.

The problems presented to the student for correction are concerned mainly with the structure and logic of sentences, not with problems of subject-verb agreement and the like. Questions deal with expressing ideas clearly and accurately, appropriately coordinating or subordinating ideas within sentences, and recognizing complete sentences. The types of questions used ask students either to identify and correct problems in sentences or to recast sentences to change structure or emphasis - tasks they might perform when they themselves write.

Essay (20 minutes)

In evaluating writing samples, the faculty members who serve as scorers take into consideration every aspect of the writing, from subject-verb agreement to organization of ideas, from use of the comma to appropriateness of examples, from spelling to style. Each sample receives two independent scores on a six-point scale. The score reported for the essay is the sum of these two scores. Thus, the highest obtainable score is 12, and the lowest is 2.

Computation (40 minutes, 35 questions)

This section of the test measures the ability to perform basic arithmetic operations and to solve problems that involve fundamental arithmetic concepts. The questions cover operations with whole numbers, operations with fractions, operations with decimals and percents, and arithmetic reasoning.

Elementary Algebra (40 minutes, 35 questions)

This section of the test measures the ability to perform basic algebraic operations and to solve problems that involve elementary algebraic concepts. It tests operations with real numbers, operations with algebraic expressions, and the ability to solve equations, inequalities, and word problems.

APPENDIX B
1 of 6
NJCBSPT Mean Scaled Scores
Statewide
1980 - 1984

	1980	1981	1982	1983	1984
Number of Students Tested	47,951	49,833	51,135	51,321	46,465
MEAN SCALED SCORES:					
Reading Comprehension	164	163	163	163	161
(Standard Deviation)	(12.2)	(12.7)	(12.7)	(12.9)	(13.2)
Sentence Structure/Sense	164	164	165	165	164
(Standard Deviation)	(11.6)	(11.9)	(11.5)	(11.5)	(11.6)
Essay	7.2	6.7	6.9	6.5	7.0
(Standard Deviation)	(2.1)	(2.0)	(2.0)	(2.1)	(2.0)
Composition[1]	165	164	165	165	165
(Standard Deviation)	(11.3)	(11.5)	(10.9)	(10.7)	(10.9)
Total English[2]	165	164	164	164	163
(Standard Deviation)	(11.6)	(11.9)	(11.6)	(11.5)	(11.5)
Math Computation	164	164	165	165	165
(Standard Deviation)	(11.1)	(11.0)	(10.7)	(10.5)	(10.5)
Elementary Algebra	165	166	166	167	167
(Standard Deviation)	(12.2)	(12.4)	(11.7)	(11.8)	(11.6)

[1]Composition is a composite score based on Sentence Structure/Sense and Essay.

[2]Total English is a composite score based on all three reading and writing sections

APPENDIX B
2 of 6
NJCBSPT Mean Scaled Scores
County Colleges
1980 - 1984

	1980	1981	1982	1983	1984
Number of Students Tested	28,464	30,073	30,380	30,677	28,191
MEAN SCALED SCORES:					
Reading Comprehension	161	161	160	159	158
(Standard Deviation)	(12.9)	(13.3)	(13.3)	(13.4)	(13.4)
Sentence Structure/Sense	161	161	162	162	161
(Standard Deviation)	(12.1)	(12.3)	(11.9)	(12.0)	(11.9)
Essay	6.7	6.2	6.5	6.0	6.6
(Standard Deviation)	(2.1)	(2.0)	(2.0)	(2.1)	(2.0)
Composition[1]	162	161	162	162	162
(Standard Deviation)	(11.7)	(11.8)	(11.2)	(10.8)	(11.0)
Total English[2]	161	161	161	161	160
(Standard Deviation)	(12.1)	(12.3)	(12.0)	(11.6)	(11.5)
Math Computation	161	161	162	162	162
(Standard Deviation)	(11.1)	(11.0)	(10.6)	(10.1)	(10.1)
Elementary Algebra	161	161	162	162	162
(Standard Deviation)	(10.4)	(10.6)	(10.2)	(9.9)	(9.7)

[1]Composition is a composite score based on Sentence Structure/Sense and Essay.

[2]Total English is a composite score based on all three reading and writing sections.

APPENDIX B
3 of 6
NJCBSPT Mean Scaled Scores
State Colleges
1980 - 1984

	1980	1981	1982	1983	1984
Number of Students Tested	10,669	10,338	11,328	10,981	9767
MEAN SCALED SCORES:					
Reading Comprehension	166	165	165	166	164
(Standard Deviation)	(10.3)	(11.1)	(11.3)	(11.0)	(11.6)
Sentence Structure/Sense	167	167	167	168	167
(Standard Deviation)	(9.7)	(10.0)	(9.9)	(9.8)	(10.0)
Essay	7.5	7.2	7.3	7.0	7.4
(Standard Deviation)	(1.8)	(1.8)	(1.8)	(1.9)	(1.8)
Composition[1]	168	167	167	168	168
(Standard Deviation)	(9.5)	(9.6)	(9.5)	(9.2)	(9.4)
Total English[2]	167	167	167	167	166
(Standard Deviation)	(9.7)	(10.0)	(10.0)	(9.7)	(9.9)
Math Computation	167	167	167	168	167
(Standard Deviation)	(9.5)	(9.6)	(9.4)	(9.2)	(9.3)
Elementary Algebra	167	168	168	169	169
(Standard Deviation)	(11.1)	(11.2)	(10.7)	(10.8)	(10.5)

[1]Composition is a composite score based on Sentence Structure/Sense and Essay.

[2]Total English is a composite score based on all three reading and writing sections.

APPENDIX B
4 of 6
NJCBSPT Mean Scaled Scores
Rutgers
1980 - 1984

	1980	1981	1982	1983	1984
Number of Students Tested	6,237	6,559	6,219	6,251	5,856
MEAN SCALED SCORES:					
Reading Comprehension	170	170	170	171	170
(Standard Deviation)	(8.5)	(8.[illegible])	(8.5)	(8.0)	(8.6)
Sentence Structure/Sense	171	171	171	172	173
(Standard Deviation)	(8.0)	(8.3)	(8.6)	(7.1)	(7.1)
Essay	8.3	7.9	7.8	7.9	8.2
(Standard Deviation)	(1.7)	(1.7)	(1.6)	(1.7)	(1.6)
Composition[1]	172	172	171	173	173
(Standard Deviation)	(7.9)	(8.2)	(7.6)	(7.3)	(7.3)
Total English[2]	172	172	171	173	172
(Standard Deviation)	(8.0)	(8.3)	(7.7)	(7.4)	(7.6)
Math Computation	172	172	173	174	174
(Standard Deviation)	(7.7)	(7.8)	(7.3)	(6.8)	(6.8)
Elementary Algebra	177	177	177	179	179
(Standard Deviation)	(10.8)	(10.9)	(9.7)	(9.6)	(9.3)

[1]Composition is a composite score based on Sentence Structure/Sense and Essay.

[2]Total English is a composite score based on all three reading and writing sections.

APPENDIX B
5 of 6
NJCBSPT Mean Scaled Scores
NJIT
1980 - 1984

	1980	1981	1982	1983	1984
Number of Students Tested	687	679	722	599	541
MEAN SCALED SCORES:					
Reading Comprehension	170	169	168	169	162
(Standard Deviation)	(8.7)	(10.1)	(10.2)	(10.0)	(11.5)
Sentence Structure/Sense	170	169	170	170	169
(Standard Deviation)	(8.3)	(9.0)	(9.0)	(8.9)	(9.5)
Essay	7.6	7.2	7.2	7.0	7.5
(Standard Deviation)	(1.8)	(1.7)	(1.7)	(1.9)	(1.9)
Composition[1]	170	169	168	169	169
(Standard Deviation)	(8.0)	(9.0)	(8.8)	(8.8)	(9.6)
Total English[2]	170	169	168	169	168
(Standard Deviation)	(8.1)	(9.3)	(9.2)	(9.2)	(10.3)
Math Computation	176	175	175	176	175
(Standard Deviation)	(4.2)	(5.0)	(5.1)	(5.1)	(6.1)
Elementary Algebra	182	182	182	183	181
(Standard Deviation)	(6.8)	(6.8)	(6.6)	(6.5)	(7.7)

[1]Composition is a composite score based on Sentence Structure/Sense and Essay.

[2]Total English is a composite score based on all three reading and writing sections.

APPENDIX B
6 of 6
NJCBSPT Mean Scaled Scores
Statewide Comparison of Recent High School Graduates*
1980 - 1984

	1980	1981	1982	1983	1984
Number of Recent High School Graduates	29,355	30,540	31,964	32,236	28,466
Percent of Total Test Takers	61%	61%	63%	63%	61%
TOTAL ENGLISH					
Number Completing Test	29,255	30,488	31,621	31,538	28,401
Not Attempted	100	52	343	192	65
Mean Score	166	165	165	166	165
Standard Deviation	10.5	10.8	10.3	10.2	10.5
MATH COMPUTATION					
Number Completing Test	29,222	30,415	31,856	31,661	28,438
Not Attempted	133	125	108	69	28
Mean Score	166	166	166	167	167
Standard Deviation	10.1	10.1	9.9	9.6	9.8
ELEMENTARY ALGEBRA					
Number Completing Test	27,496	28,499	29,754	29,995	27,134
Not Attempted	1,859	2,041	2,210	1,735	1,332
Mean Score	168	168	169	169	169
Standard Deviation	11.9	12.1	11.4	11.5	11.3

*For each year, the most recent high school graduates are those who graduated the spring prior to their enrollment in college.

APPENDIX C

A DESCRIPTION OF THE PROFICIENCY LEVELS ESTABLISHED BY THE BASIC SKILLS COUNCIL

Based upon its understanding of the content and difficulty level of the test, and upon the recommendations of its advisory committees, the Council offers the following general propositions to assist in understanding the test results presented in this report.

Verbal Skills

For the purpose of this report, students who scored below 161 on Total English* were placed in the "Lack Proficiency" category. Those who fell in the 161-172 range on Total English were placed in the "Lack Proficiency in Some Areas" category while those students above 172 on Total English "Appear to be Proficient." A more precise understanding of an individual student's scores can be achieved by considering the following.

In the Council's judgement, all students with essay scores of 2, 3 or 4, and those students with an essay score of 5 or 6 but fewer than 80 percent correct on either of the two multiple-choice tests, are seriously deficient in their use of written language. An essay score of 2, 3, or 4 indicates pronounced weakness in writing: in these essays the message is not always clear, the idea is either not developed or not logical, and the conventions of written language are usually not observed. An essay score of 5 or 6, together with fewer than 80 percent correct on one or both of the multiple-choice tests,

*Total English is a composite score based on all three reading and writing sections

indicates a need for help in following the conventions of written language, and in developing and comprehending an idea in a coherent manner.

Many students exhibit a pattern of performance that must be reviewed more carefully, since they probably require some assistance in one or more areas according to the requirements and standards of the individual colleges. Students in this category either did not demonstrate proficiency in one or more areas, or exhibited a marked discrepancy among scores. For example, a high essay score and a low sentence sense score is a pattern that bears examination. Essay scores of 5, 6 or 7 together with multiple-choice scores above 80 percent are "average" in that the essays tend to lack depth and coherence and, despite the multiple-choice scores, the writing samples may exhibit flaws in structure and/or language conventions. An essay score of 7 combined with scores of less than 80 percent correct on one or both of the multiple-choice tests indicates at best a marginal performance. Essay scores of 8-12 and fewer than 80 percent correct on any one of the multiple-choice tests are discrepant patterns, since these essay scores indicate a range from above average to excellent, and the multiple-choice scores appear to contradict the essay scores.

Students with essay scores of 8-12 and 80 percent correct on both multiple-choice tests seem to be proficient in the basic skills of reading and writing. The writers of these essays have control of both the language and the structures they are using; generally speaking, they can comprehend a relatively mature idea and develop it in standard English.

Computation

A scaled score of 164 or below (18 or fewer questions correct out of 30 on the 1984 test) indicates pronounced weaknesses in dealing with certain computational operations and, in particular, with problems involving percentages and decimals. Declining scores indicate progressively greater difficulty with operations involving fractions. Students scoring below 165 on the computation test are included in the category: "Lack Proficiency."

The range of scaled scores from 165 to 172 (19 to 24 questions correct) indicates greater familiarity with elementary computation but still shows definite weaknesses. The particular weaknesses of a student can be identified only by examining individual item responses. Students falling in the range of 165 to 172 on the computation test fall in the category: "Lack Proficiency in Some Areas."

Students who achieve a scaled score of at least 173 (25 questions correct) seem to be proficient in the elementary computational skills measured by this test and fall in the "Appear to be Proficient" category.

Elementary Algebra

Students who achieve a scaled score of 166 or below (13 or fewer questions correct out of 30 on the 1984 test) definitely lack an understanding of elementary algebra. Such students may possess a smattering of knowledge but have difficulty with a wide variety of elementary operations, and are not

able in general to perform sustained operations involving a succession of simple steps. Students in this category ("Lack Proficiency") probably need to restudy elementary algebra from the beginning.

The particular difficulties of students who score in the scale range from 167 to 182 (14 to 24 questions correct) vary. They have some misconceptions, have some trouble dealing with equations involving letters rather than numbers, and probably cannot handle sustained operations well. The type of assistance or course work such students may require will depend on each student's background and can be determined by careful examination of the particular patterns of item responses. Students scoring in the range of 167 to 182 on elementary algebra are included in the "Lack Proficiency in Some Areas" category.

Students who achieve a scaled score of 183 and above (25 or more questions correct) seem to have no widespread weaknesses in performing elementary algebraic operations and fall in the "Appear to be Proficient" category. They probably can do simple, sustained operations. The test does not extend far enough in difficulty level to determine whether students scoring in this highest range are able to complete a more complex succession of simple operations.

APPENDIX D

Items Typical of Those Included on the NJCBSPT, Mathematics Sections
(Items are multiple choice in the actual tests)

COMPUTATION

Item

1. $\begin{array}{r} 8.35 \\ \times 4.7 \\ \hline \end{array}$

2. $\frac{2}{3} + \frac{1}{2} = ?$

3. $35.2 - 8.07 = ?$

4. If 6 pounds of cheese cost $8.04, how much will 4 pounds cost?

5. $\frac{7}{8} \div \frac{3}{5} = ?$

6. 30 percent of 200 = ?

7. $\frac{9}{20}$ expressed in decimal form is?

8. $\begin{array}{r} 7\frac{1}{8} \\ -3\frac{1}{6} \\ \hline \end{array}$

9. $0.6\overline{)360}$

10. If the price of a $0.60 pad of paper is increased by 15 percent, what is the new price?

11. $\frac{\frac{8}{}}{\frac{1}{4}} = ?$

12. 20 is 8 percent of what number?

ELEMENTARY ALGEBRA

Item

1. $10a - 8b - 3a + 2b = ?$

2. $(3x + 1)(5x - 1) = ?$

3. If $7x - 3 = 2$, then $x = ?$

4. If $4x = 9 - 7x$, then $x = ?$

5. The value of $y = 3x^2 - 5x + 7$ when $x = -2$ is?

6. $(3a + 4)^2 = ?$

7. If $6(x - 2) + 5 = 2x$, then $x = ?$

8. A factor of $x^2 + 2x - 15$ is?

9. $\frac{b^8}{b^4} = ?$

10. If $\frac{3}{5}x - 2 = \frac{4}{5}$, then $x = ?$

11. In the solution of the system of equations below, what is x?

$$\begin{cases} 3x - y = 11 \\ 5x + 2y = 4 \end{cases}$$

12. If $ax = c - bx$, then $x = ?$

APPENDIX E

Comparison of Statewide
Self-Reported Student Background Information
1980 - 1984

	1980		1981		1982		1983		1984	
	#	%	#	%	#	%	#	%	#	%
Consider themselves above average in written expression	23,444	49	25,225	51	25,789	50	26,631	52	23,554	51
Consider themselves average in written expression	20,395	43	20,699	42	21,004	41	20,862	41	18,849	41
Consider themselves below average in written expression	2,236	5	2,105	4	2,135	4	2,062	4	1,906	4
Want help to improve writing	10,561	22	10,678	21	10,621	21	11,209	22	10,061	22
Want help to improve reading	6,372	13	6,084	12	5,766	11	5,911	12	5,028	11
Want help to improve study habits	15,624	33	15,968	32	15,435	30	16,327	32	14,603	31
Consider themselves above average in mathematical ability	19,491	41	20,989	42	21,648	42	22,499	44	20,029	43
Consider themselves average in mathematical ability	21,097	44	21,701	44	22,206	43	21,939	43	19,608	42
Consider themselves below average in mathematical ability	5,319	11	5,180	10	4,987	10	5,015	10	4,603	10
Want help to improve mathematics	15,705	33	16,127	32	16,249	32	16,725	33	15,096	33

APPENDIX F

Recommendations

The Basic Skills Council has analyzed the results of the NJCBSPT for the past six years. In doing so, the Council has collected data and information on the remedial efforts of every public college in the state. The following general recommendations are based upon analysis of these data, as well as the knowledge and expertise of the faculty members who sit on both the Council and its advisory committees.

1. The standards for high school graduation should be upgraded to require demonstration of basic skills proficiency at least at a level comparable to that measured by the NJCBSPT.

   The Council recommends this level of proficiency for <u>all</u> students (with the exception of some "classified" students as defined by the New Jersey Department of Education) graduating from high school, whether they go to college or not, since these skills are prerequisites for full participation in our society. As long as thousands graduate from high school lacking in these basic skills, students will continue to need remediation to succeed in college, or colleges will need to lower their academic standards to accomodate these students.

2. The development of critical thinking, reasoning, and problem solving skills ought to be the underlying goal of education at all levels.

3. Individual operations, processes, and facts should not be taught in isolation, but rather within a broad conceptual framework. The objective of instruction should be to impart an understanding of the order inherent in a subject.

4. High standards should be embraced by all educational institutions. Teachers should not be satisfied with minimal competency; all students should be challenged to excel to the maximum of their abilities.

5. Students' progress at all levels should be evaluated frequently. Students who have not achieved mastery of basic skills at one level should not be moved to the next level until requisite proficiencies can be demonstrated. Social promotion should be discouraged. No student deficient in basic skills should receive a diploma or a degree.

6. Students at all levels should be encouraged to do much more reading and writing. It is not sufficient for English teachers alone to emphasize reading and writing; these skills should be reinforced by teachers in all academic disciplines. Moreover, reading and writing should be taught in an integrated fashion throughout the curriculum rather than as isolated subjects.

7. Students need to be more aware of reading and writing as processes of communication. They should know how to draw inferences from what is being said in a reading passage, and they should understand the necessity for clarity

in their own writing. They should also recognize that reading and writing skills are far from becoming outdated and are essential for such modern areas of specialization as computer technology and media communication.

8. Students must be made more conscious of the connections between reading and writing. Such connections become readily apparent if the two skills are taught in conjunction with one another and if both are seen not as passive, but active experiences.

9. Emphasis should be placed on helping students to understand what they are reading by requiring that they critically analyze and evaluate the material they read. A corollary of this recommendation is the need for increased use of essay questions on examinations. Essay questions require both more writing and increased practice of reasoning and critical thinking.

10. The importance of role models cannot be overstressed. Parents and teachers alike should communicate, especially through the example of their behavior, that reading and writing have a place in all our lives and that reading and writing well are pleasurable and have practical advantages.

11. Although facility with numbers and arithmetic operations is essential, computation should be taught as something more than mechanical processes. Algebraic reasoning can and should be introduced early and taught concurrently with arithmetic. The process should begin at the elementary level using

a natural, logical progression from concrete problems and the use of numbers to abstract reasoning and the use of symbols.

12. Increased attention should be devoted to developing students' ability to solve word problems, emphasizing the principle that practical problems can be translated into mathematical symbols and, conversely, mathematical expressions can be translated into words.

13. Colleges, at least for the present, should not assume that the completion of a course or sequence of courses in high school signifies proficiency. Students' readiness for more advanced work should be verified by using a variety of evaluation techniques.

14. Increased emphasis should be placed on the role of homework at all levels of education. Assignments that extend the topics covered in class and reinforce what is taught in school should be required on a regular basis. A mixture of short-term and long-term assignments can also aid students to develop the discipline and requisite study habits important for both college courses and the world of work.

15. Final cumulative examinations should be given in all courses to emphasize overall learning and integration of material from the whole course, not merely recollection of isolated facts or ideas.

NJCBSPT Publications and Related Reports*

Interpreting Mathematics Scores on the New Jersey College Basic Skills Placement Test

Interpreting Scores on the New Jersey College Basic Skills Placement Test

Scoring the Essay

Teaching Reading & Writing: Observations derived from the results of the New Jersey College Basic Skills Placement Test

Report to the Board of Higher Education on Results of the New Jersey Basic Skills Placement Testing and Recommendations on Instruction and Curriculum, New Jersey Basic Skills Council, January 20, 1984

Report on the Character of Remedial Programs in New Jersey Public Colleges and Universities, Fall 1983, New Jersey Basic Skills Council, July 20, 1984

Report on the Effectiveness of Remedial Programs in New Jersey Public Colleges and Universities, Fall 1982 Spring 1984, New Jersey Basic Skills Council, February 15, 1985

Student Information Bulletin 1985

*Publications and reports are available from the Basic Skills Office, New Jersey Department of Higher Education, 225 West State Street, Trenton, NJ 08625.